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REMARKS

1. This paper is responsive to the Office Action mailed April 22, 2004.

Reconsideration and further examination is respectfully requested.

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2. In brief, the present invention is a method of selecting data from a computer

graphics frame buffer in an efficient manner for display.

3. Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over

10 Lawless et al. (US Pat. # 5,371,514) in view of Kim et al (US Pat # 5,355,443).

4. Regarding claim 1, the Examiner claimed that, "Lawless teaches the claimed

'display system' comprising: 'a memory, containing graphics data, divided into

logical regions' (Lawless, column 5, lines 22-48); and 'an attribute system,

15 connected to said memory wherein said attribute system selects graphics data

from fewer than all of said logical regions and transmits said graphics data to a

display' (Lawless, column 6, lines 3-31)." The Examiner also clarifies the

rejection by stating that, "Applicant argues that Kim does not teach the claimed

Applicant's invention where for any given window size and location, 'there are

20 multiple logical regions of frame buffer memory to select between for display'.

However, such feature is neither showed nor inherent in the claim..." Applicant

has amended claim 1 to include the limitation of a memory, containing graphics

data, divided into multiple logical regions to be selected between for display. The

Examiner also notes that, "Kim's display region of which frame buffer data will

25 be displayed on the video monitor (figure 4, VRAM 12) shows the frame buffer

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attribute data which allows the selection of graphics data from fewer than all of said logical regions of memory 56. It is clear that the displayed data on the video buffer VRAM 12 will be 'fewer' than the data in the logical regions of memory 56." However, note that column 18, lines 28-29 of Kim which the Examiner references pertain to the movement of a display window within the frame buffer which is used to select which portions of the frame buffer are sent to the VRAM 12 for display. While the window may be repositioned within the frame buffer, Kim lacks the per pixel selection functionality of Applicant's invention. Kim's invention only allows the selection of contiguous segments of the frame buffer while in applicant's invention, the multiple regions of frame buffer memory need not be contiguous. Applicant has also amended claim 1 to include the limitation that said selected logical regions of memory are not contiguous. Thus, applicant respectfully submits that claim 1 has been distinguished from the inventions of Lawless and Kim and is now in a condition for allowance.

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5. Regarding claim 2, the Examiner claimed that, "Claim 2 adds into claim 1 the store of graphics data and frame attribute data in separate physical memories which Kim teaches in figure 8 and Lawless suggests in figures 3 and 8." However, as discussed above, in Kim's invention the window may be repositioned within the frame buffer, however, Kim lacks the per pixel selection functionality of Applicant's invention. Kim's invention only allows the selection of contiguous segments of the frame buffer while in applicant's invention, the multiple regions of frame buffer memory need not be contiguous. Applicant has also amended claim 1 to include the limitation that said selected logical regions of memory are not contiguous. Thus, applicant respectfully submits that claim 2 has been

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distinguished from the inventions of Lawless and Kim and is now in a condition for allowance.

6. Regarding claim 3, the Examiner stated that, "Lawless teaches the claimed 'display system' comprising: 'a memory, containing graphics data, divided into logical regions' (Lawless, column 5, lines 22-48); and 'a regions system, that calculates which regions of said graphics data contain data necessary for display of a block of pixels; wherein said regions are fewer than all of said logical regions' (Lawless, column 6, lines 3-31)." The Examiner also clarifies the rejection by stating that, "Applicant argues that Kim does not teach the claimed Applicant's invention where for any given window size and location, 'there are multiple logical regions of frame buffer memory to select between for display'. However, such feature is neither showed nor inherent in the claim..." Applicant has amended claim 1 to include the limitation of a memory, containing graphics data, divided into multiple logical regions to be selected between for display. The Examiner also notes that, "Kim's display region of which frame buffer data will be displayed on the video monitor (figure 4, VRAM 12) shows the frame buffer attribute data which allows the selection of graphics data from fewer than all of said logical regions of memory 56. It is clear that the displayed data on the video buffer VRAM 12 will be 'fewer' than the data in the logical regions of memory 56." However, note that column 18, lines 28-29 of Kim which the Examiner references pertain to the movement of a display window within the frame buffer which is used to select which portions of the frame buffer are sent to the VRAM 12 for display. While the window may be repositioned within the frame buffer, Kim lacks the per pixel selection functionality of Applicant's invention. Kim's invention only allows the selection of contiguous segments of the frame buffer

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while in applicant's invention, the multiple regions of frame buffer memory need not be contiguous. Applicant has also amended claim 3 to include the limitation that said selected logical regions of memory are not contiguous. Thus, applicant respectfully submits that claim 3 has been distinguished from the inventions of Lawless and Kim and is now in a condition for allowance.

- 5 7. Regarding claim 4, the Examiner stated that, "Claim 4 adds into claim 3 the store of graphics data and frame attribute data in physically separate memories which Kim teaches in figure 8 and Lawless suggests in figures 3 and 8." However, as discussed above, applicant believes that claim 3 has been sufficiently distinguished from Lawless and Kim and is in a condition for allowance. Since dependent claim 4 includes all of the limitations of claim 3, applicant believes that it too is in a condition for allowance.
- 10 15 8. Regarding claim 5, the Examiner stated that, "Claim 5 adds into claim 3 'wherein said regions systems sends identities of said regions to a screen refresh unit; and wherein said screen refresh unit, calculates memory addresses from said identities and sends selected graphics data from said memory to a display' which Lawless teaches in column 11, lines 34-49." However, as discussed above, applicant believes that claim 3 has been sufficiently distinguished from Lawless and Kim and is in a condition for allowance. Since dependent claim 5 includes all of the limitations of claim 3, applicant believes that it too is in a condition for allowance.
- 20 25 9. Regarding claim 6, the Examiner stated that, "Claim 6 adds into claim 5 'said logical regions further comprising memory to store graphics data for each pixel of a monitor' which Kim teaches in figure 8 and Lawless suggests in figures 3 and

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8." However, as discussed above, applicant believes that claim 3 has been sufficiently distinguished from Lawless and Kim and is in a condition for allowance. Since dependent claim 6 includes all of the limitations of claims 3 and 5, applicant believes that it too is in a condition for allowance.

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10. Regarding claim 7, the Examiner stated that, "Lawless teaches the claimed 'method for selectively reading pixel data from a frame buffer memory array' comprising: 'defining a plurality of regions of frame buffer memory, wherein each region comprises memory to store graphics data for each pixel of a monitor' (Lawless, column 5, lines 22-48); and 'calculating a subset of said regions of frame buffer memory that are required to display said pixel on said monitor; and retrieving from said frame buffer memory pixel data only from said subset of regions of frame buffer memory that are required to display said pixel on said monitor' (Lawless, column 6, lines 3-31)." The Examiner also clarifies the rejection by stating that, "Applicant argues that Kim does not teach the claimed Applicant's invention where for any given window size and location, 'there are multiple logical regions of frame buffer memory to select between for display'. However, such feature is neither showed nor inherent in the claim..." Applicant has amended claim 7 to include the step of defining a plurality of regions of frame buffer memory to be selected between for display. The Examiner also notes that, "Kim's display region of which frame buffer data will be displayed on the video monitor (figure 4, VRAM 12) shows the frame buffer attribute data which allows the selection of graphics data from fewer than all of said logical regions of memory 56. It is clear that the displayed data on the video buffer VRAM 12 will be 'fewer' than the data in the logical regions of memory 56." However, note that 15 column 18, lines 28-29 of Kim which the Examiner references pertain to the 20 25

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movement of a display window within the frame buffer which is used to select which portions of the frame buffer are sent to the VRAM 12 for display. While the window may be repositioned within the frame buffer, Kim lacks the per pixel selection functionality of Applicant's invention. Kim's invention only allows the 5 selection of contiguous segments of the frame buffer while in applicant's invention, the multiple regions of frame buffer memory need not be contiguous. Applicant has also amended claim 7 to include the limitation that said subset of said regions of frame buffer memory are not contiguous. Thus, applicant respectfully submits that claim 7 has been distinguished from the inventions of 10 Lawless and Kim and is now in a condition for allowance.

11. Regarding claim 8, the Examiner stated that, "Claim 8 adds into claim 7 'wherein said graphics data and said attribute data are stored in said frame buffer memory' which Kim teaches in figure 8 and Lawless suggests in figures 3 and 8."

15 However, as discussed above, applicant believes that claim 7 has been sufficiently distinguished from Lawless and Kim and is in a condition for allowance. Since dependent claim 8 includes all of the limitations of claim 7, applicant believes that it too is in a condition for allowance.

20 12. Regarding claim 9, the Examiner stated that, "Lawless teaches the claimed 'method for selectively reading pixel data from a frame buffer memory array' comprising: 'defining a plurality of regions of frame buffer memory, each region further comprising memory to store graphics data for each pixel of a monitor' (Lawless, column 5, lines 22-48); and 'calculating a subset of said regions of 25 frame buffer memory that are required to display said tile on said monitor; and retrieving from said frame buffer memory pixel data only from said subset of

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regions of frame buffer memory that are required to display said tile on said monitor' (Lawless, column 6, lines 3-31)." The Examiner also clarifies the rejection by stating that, "Applicant argues that Kim does not teach the claimed Applicant's invention where for any given window size and location, 'there are 5 multiple logical regions of frame buffer memory to select between for display'. However, such feature is neither showed nor inherent in the claim..." Applicant has amended claim 7 to include the step of defining a plurality of regions of frame buffer memory to be selected between for display. The Examiner also notes that, "Kim's display region of which frame buffer data will be displayed on the video 10 monitor (figure 4, VRAM 12) shows the frame buffer attribute data which allows the selection of graphics data from fewer than all of said logical regions of memory 56. It is clear that the displayed data on the video buffer VRAM 12 will be 'fewer' than the data in the logical regions of memory 56." However, note that column 18, lines 28-29 of Kim which the Examiner references pertain to the 15 movement of a display window within the frame buffer which is used to select which portions of the frame buffer are sent to the VRAM 12 for display. While the window may be repositioned within the frame buffer, Kim lacks the per pixel selection functionality of Applicant's invention. Kim's invention only allows the selection of contiguous segments of the frame buffer while in applicant's invention, the multiple regions of frame buffer memory need not be contiguous. 20 Applicant has also amended claim 9 to include the limitation that said subset of said regions of frame buffer memory are not contiguous. Thus, applicant respectfully submits that claim 9 has been distinguished from the inventions of Lawless and Kim and is now in a condition for allowance.

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13. Regarding claim 10, the Examiner stated that, "Claim 10 adds into claim 9 'wherein said graphics data and said attribute data are stored in said frame buffer memory' which Kim teaches in figure 8 and Lawless suggests in figures 3 and 8."

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10      14. For these reasons, this application is considered to be in condition for allowance and such action is earnestly solicited.

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Respectfully submitted,

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25      August 19, 2004  
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